Statements of
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before the

Subcommittee on Contracting and Technology
House Committee on Small Businesses
House of Representatives

Thank you Congressman Glenn Nye, Congressman Aaron Schock, and distinguished members of the Small Business Subcommittee on Contracting and Technology.

Thank you for the invitation and the opportunity to testify before the Subcommittee on Contracting and Technology. Specifically, we are here to discuss our experience in working with NASA, our role in generating innovative technology, and our successes in stimulating local economic activity.

We are sincere in our hope that small business continues to be the driver of America's innovation engine. We seek not only to support NASA's mission to lead the world in Space, Exploration, Science, and Aeronautics, but also to help ensure America continues to be an economic leader in the 21st century. Headquartered in Hampton, VA, home is where the heart is. Our passion is to help NASA LaRC and Wallops Flight Facility in their honorable pursuits.

AMA's History

Analytical Mechanics Associates (AMA), Inc. is a small business celebrating almost 50 years of service to NASA and industry. We specialize in Engineering, Information Technology, Visualization, and Business Analytics. Armed with this skill-set and our passion to do excellent technical work, AMA has supported a broad range of past, present, and future NASA's missions including the Space Shuttle, International Space Station, the Orion Spacecraft and ARES Launch Vehicle Developments for the Constellation Program, Mars missions, Earth Science missions, and the Hyper-X flight experiment which flew at speeds up to Mach 10 to verify a novel engine concept.

AMA's current management, Dr. Renjith Kumar and myself (two aerospace engineers from Virginia Universities), took over the company in 1997 after economics forced the previous owners to sell the business. With just five employees and limited cash flow, the company was barely viable and could have folded at any time. But we didn't. Our primary motivation in taking over the company had little to do with the ambition of business. Like so many small technical firms in their infancy, the primary objective was to do cutting edge engineering, research, and development. Had the company gone out of business, an interesting Small Business Innovative Research grant that we were working on would have evaporated. That is our story on how two engineers evolved into entrepreneurs. We believe we are not alone. We believe this is the true spirit of small business in America.

The company survived, in part, because we were able to enter the company into the SBA 8(a) program. We were actually surprised that we were still solvent at the end of our first year. Not only had we not lost our life savings, we were able to pay ourselves a meager salary, and at the end of the

day made a profit. This exceeded our expectations. So we made a $5,000 donation to a local high school in an economically disadvantaged area. The school later told us it was the largest donation they had ever received.

AMA Today

Let's fast-forward 12 years. Today AMA has almost 100 employees. We have experts in multiple Aerospace Engineering disciplines, Information Technology, Business Analytics, Modeling and Simulation, and Visualization and Multi-media. The majority of our business falls under government contracts for NASA. Over the last few years, our commercial business has fluctuated between 10% and 30%, with an overall increasing trend.

Today, through NASA Langley, AMA is providing support in all of NASA's mission areas of Exploration, Science, and Aeronautics and played a pivotal role in two recent flight experiments launched from Wallops, the Max Launch Abort System and the Inflatable Re-entry Vehicle Experiment.

Technology Crossover and Incubation - From NASA to Industry and Back

In a hypercompetitive global market, it is not easy for a small business to establish a presence in the high-tech industry. We are making good progress. Could we have done it without our relationship with NASA? Absolutely not.

Before we could cross over into the commercial markets, we needed to assemble a critical mass of talent. The contract work at NASA enabled us to grow and retain these critical skills. In addition, being able to refer to our NASA work helped build the trust of new commercial clients. Today, most of the solutions that we provide to our commercial customers are spin-offs or extensions of technologies that we developed for our customers at NASA. Our work at NASA provides a steady funding stream, helping bridge funding gaps that we face in the much more volatile commercial sector.

In the commercial world, we provide services to Fortune 500 companies in our core competencies. We are also proud to provide local companies with IT software support and webpage design services.

AMA has utilized technology and expertise developed at NASA to create commercial markets that few would associate with the business of space or aeronautics. AMA has many examples of the cross-fertilization of technology between NASA and Industry:

ARTEMIS (Augmented Reality Technology for Minimally Invasive Surgery): At NASA we have developed Virtual Environments for space vehicle design. We help answer the questions, "Can an Astronaut reach this lever?", "Can the Astronaut fit here?". Without building a physical prototype, we are able to simulate this scenario in Virtual Reality. In industry, we have adopted this VR technology to Medical Surgery. Using similar tools and techniques, we built a prototype system to aid the surgeon performing radio frequency ablation of tumors.

LookShare (A system to help the Blind): AMA has created collaborative environments for NASA. These environments help NASA engineers and scientists collaboratively work together over the internet, performing design and analysis of space vehicles and missions. As part of our philanthropic efforts, AMA has invested and created a prototype system, "LookShare", to help the visually impaired. LookShare pairs a blind person with a sighted person, and uses the concept of tele-presence to allow them to work together. The blind person wears glasses with a built-in video camera. This

video is streamed over the internet to the sighted person who "guides" them. AMA's experience with NASA was key in the success of this R&D effort. This patent pending effort has been well received by the blind community.

Our Role in NASA's Public Outreach

We as a company work hard to educate the public on the incredible work performed by the entire NASA family. As our society continues to be overloaded by information, the NASA message must be compelling and engaging to catch public interest. AMA has played a strong role in NASA's Public Outreach and Education.

To capture the public's interest, AMA synthesizes state-of-the-art technology from leading companies (Apple, Google, Microsoft) to provide award winning solutions. AMA's agile, innovative culture has led to following recent successes for public outreach:

Lunar Electric Rover (LER) iPhone Application: One of NASA's very first iPhone applications, this program allows the public to "drive" NASA's Lunar Electric Rover (featured at President Obama' s Inauguration) and study the current design of the Lunar Outpost. The application will be downloadable via Apple's iTunes. The public will be able to understand NASA's design of a lunar outpost while having fun.

NASA's Mission Madness: Mission Madness was an event created to increase awareness of NASA's missions: past, present, and future. Sixty-four missions competed in a "March Madness" like tournament, with the public picking the winning mission. Widely considered a great success, over 750,000 votes from the public were recorded. The content was featured on numerous blogs and news channels. Interestingly, the contest also increased camaraderie among current NASA mission teams. Teams banded together to "vote" for their respective missions.

Our Role In Education

We as a company place high-importance on education and its role in the well-being of our community and country. We are privileged to help mold and educate future generations of aerospace and IT professionals through our internship programs, often times in collaboration with NASA. There is nothing that captures the imagination of young minds more than space flight.

Concluding Remarks

In conclusion, I would like to reiterate our sincere thanks for the opportunity to share our thoughts and story with this distinguished committee. We would like thank NASA for the continued support for almost 50 years. We are committed to the NASA mission and hope our efforts continue to help America pursue her highest goals. Thank you.